

Winter Weather Decision Support



National Weather Service Springfield, Missouri

This publication has been designed to enhance readiness and decision response by the emergency management community. Winter storms can be dangerous across the Missouri Ozarks and southeast Kansas. Winter weather can change drastically bringing bitter cold, heavy snow and devastating ice storms.

Inside this issue:

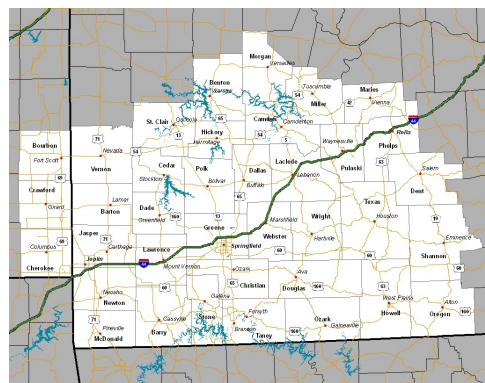
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Serving the Missouri Ozarks and extreme southeast Kansas

NWS Springfield has forecast and warning responsibility for 34 counties in the Missouri Ozarks and 3 counties in southeast Kansas.

NWS Springfield strives to serve decision makers with accurate and timely routine and hazardous weather information.



Winter Storm Products

National Weather Service (NWS) Springfield issues Winter Storm Watches, Warnings, and Advisories for 34 counties in southwest Missouri and 3 counties in extreme southeast Kansas.



Warnings and advisories are issued for expected or occurring winter weather conditions meeting a specific criteria.

Winter Storm Watches

Issued for the possibility of severe winter conditions meeting warning criteria between 18 and 48 hours.

- Heavy snow accumulations of $\geq 6"$
- Sleet accumulations $\geq 1/2"$
- Combination of significant snow ($\geq 3"$) & ice accumulations ($\geq 1/8"$)

Winter Storm Warnings

Issued when severe weather conditions are expected within 18 hours.

- Heavy snow accumulations of $\geq 6"$
- Sleet accumulations $\geq 1/2"$
- Combination of significant snow ($\geq 3"$) & ice accumulations $\geq 1/8"$

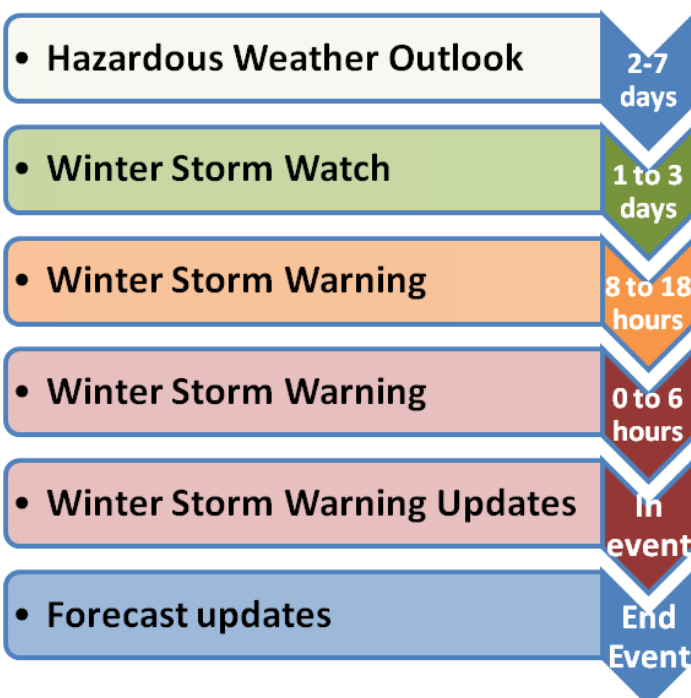
Ice Storm Warning are issued for ice accumulations from freezing rain $\geq 1/4"$.

Winter Weather Advisories

Issued for less significant accumulations of snow and ice to occur within 18 hours that can be hazardous if proper precautions are not taken.

- Snow accumulations $\leq 5"$
- Combination of snow ($\leq 3"$ and minor ice accumulations)

Winter weather products are issued following a "Ready" \rightarrow "Set" \rightarrow "Go" concept as the event approaches and confidence of occurrence increases.



Issue daily Hazardous Weather Outlooks to highlight potential weather hazards through 7 days.

<http://www.crh.noaa.gov/sgf/?n=hwo>

Issue Winter Storm Watches 12 to 48 hours in advance of a winter storm.

http://www.crh.noaa.gov/sgf/?n=winter_briefing

Issue Winter Storm Warnings up to 24 hours in advance.

http://www.crh.noaa.gov/sgf/?n=winter_briefing

Winter Storm Warning Format

Winter storm warnings are issued with designated topic bullets. Instead of paragraphs, warning information will utilize a bulleted format, much like Tornado Warnings.

The intent of this new format is to more clearly communicate all facets of a winter storm including accumulations, timing, and impact.

Information gleaned from emergency management and department of transportation can be integrated into these warning products.

...WINTER STORM WARNING IN EFFECT FROM 6 PM THIS EVENING TO NOON CST THURSDAY...

THE NATIONAL WEATHER SERVICE IN SPRINGFIELD HAS ISSUED A WINTER STORM WARNING FOR SNOW...SLEET AND FREEZING RAIN...WHICH IS IN EFFECT FROM 6 PM THIS EVENING TO NOON CST THURSDAY.

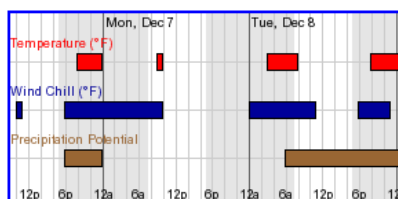
- |*
- * TIMING AND AREAS AFFECTED:
- * SNOW AND SLEET ACCUMULATIONS:
- * ICE ACCUMULATIONS:
- * WINDS AND VISIBILITY:
- * IMPACTS:
- *|

PRECAUTIONARY/PREPAREDNESS ACTIONS...

A WINTER STORM WARNING MEANS SIGNIFICANT AMOUNTS OF SNOW... SLEET...AND ICE ARE EXPECTED OR OCCURRING. STRONG WINDS ARE ALSO POSSIBLE. THIS WILL MAKE TRAVEL VERY HAZARDOUS OR IMPOSSIBLE.

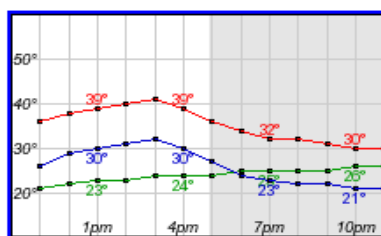
Winter Weather Forecast Tools

Weather Planner



This interactive forecast display is intended for general planning purposes. This application generates products from a digital forecast data base. It is intended to allow a user to define and produce a forecast for general planning purposes. For instance, you can define what temperature, wind and wind chill values or interest may occur.

<http://forecast.weather.gov/wxplanner.php?site=sgf>

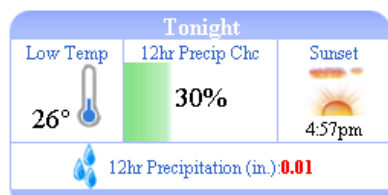


Interactive Forecast Map

Hourly Weather Graphs and tables are available using the interactive forecast map. Simply select the forecast format you desire and select the location of choice.

<http://forecast.weather.gov/gridpoint.php?site=sgf>

Quickcast Graphics



The Quickcast provides the forecast for your location of choice utilizing images

<http://forecast.weather.gov/afm/graphical.php?site=sgf>

Multi-Media Hazardous Weather Briefings

In order to provide critical weather information, the NWS in Springfield, is now producing Multi-Media Hazardous Weather Briefings. The video briefings available on the web from the NWS Springfield web site provide a summarized briefing of anticipated hazardous weather including winter storms.

These briefings will contain headline text and graphics to provide an overview of an event. Multi-media Hazardous Weather Briefings will generally be issued prior to hazard weather events. It is important to note that these briefings are not a substitute for other NWS products and warnings, but serves to compliment these services.



Video web briefings may be submitted for the following events.

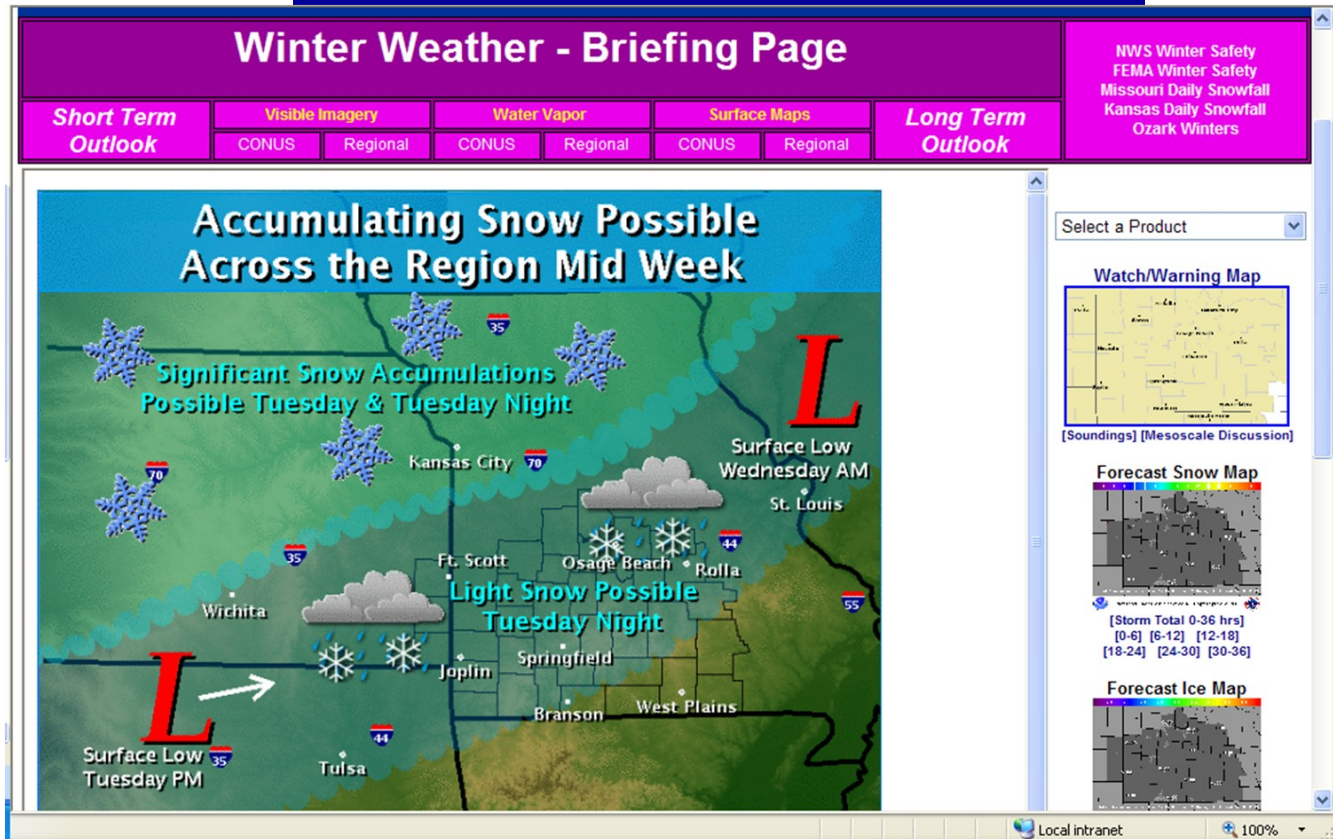
- Severe Weather – Slight, Moderate or High risk of severe thunderstorms or high confidence of significant coverage of severe weather.
- Flooding – Flash flooding of numerous small streams or low water crossings as well as significant river flooding.
- Winter Storm– Winter storms with significant accumulation and/or resulting in significant impact.
- Other significant events - High wind events, etc.

<http://www.crh.noaa.gov/sgf/?n=webbriefing>

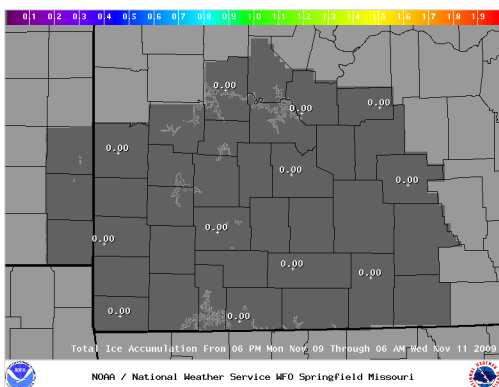
Winter Weather Web Briefing & Decision Support Pages

Knowing that time is short, the NWS has created briefing pages to serve as one stop shops for winter storms, severe weather, heavy rain, drought, and recreational forecasts. By quickly highlighting the threats, these sets of graphics provide instant situational awareness.

http://www.crh.noaa.gov/sgf/?n=winter_briefing



Snowfall and Ice Accumulation Forecast Graphics



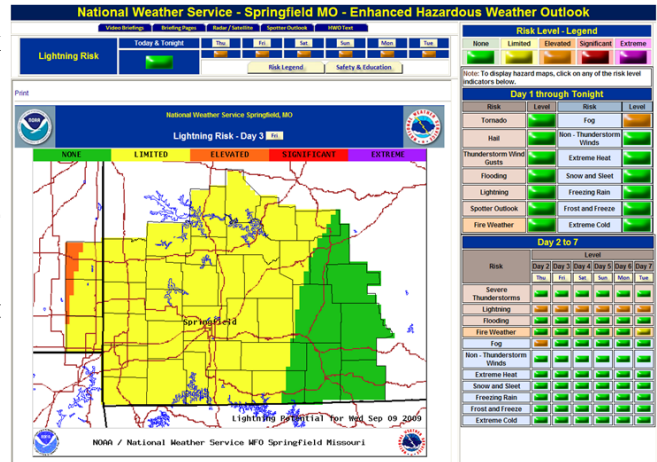
Snowfall forecast graphic depicting forecast snowfall accumulations in six hour increments in addition to the storm total will be provided this winter.

These graphics are derived directly from the Graphical Forecast Editor that forecasters utilize to create the forecast.

These graphics can be found on the Winter Weather Briefing web page.

Enhanced Hazardous Weather Outlook—Winter

The Enhanced Hazardous Weather Outlook (EHWO) can be used as a decision support tool prior to and during winter weather events to support preparedness and response efforts. The EHWO provides a graphical depiction of weather hazards through day seven. The EHWO packages five-level, color coded alert buttons and text within a comprehensive web page suite.



The EHWO was recently accepted as an official National Weather Service experimental product. You can complete a survey at :

<http://www.weather.gov/survey/nws-survey.php?code=ehhwo>

EHWO Snow & Sleet Risk Level Definitions

Risk Level	Definition
None	No snow or sleet.
Limited	Snow and/or sleet with <u>less than 1 inch of accumulation</u> expected.
Elevated	Snow and/or sleet with <u>1 to 5.9 inches of accumulation</u> expected.
Significant	Snow and/or sleet with <u>6 to 11.9 inches of accumulation</u> expected.
Extreme	Snow and/or sleet with <u>greater than or equal to 12 inches of accumulation</u> expected.

EHWO Extreme Cold Risk Level Definitions

Risk Level	Definition
None	Minimum <u>apparent temperature greater than or equal to 10 degrees F.</u>
Limited	Minimum <u>apparent temperature -9 to 9 deg F.</u>
Elevated	Minimum <u>apparent temperature -10 to -24 deg. F</u>
Significant	Minimum <u>apparent temperature -25 to -34 deg. F.</u>
Extreme	Minimum <u>apparent temperature less than or equal to -35 degrees F</u>

EHWO Freezing Rain Risk Level Definitions

Risk Level	Definition
None	No freezing rain or drizzle.
Limited	Very light freezing rain or drizzle with <u>no accumulation.</u>
Elevated	Freezing rain or drizzle with <u>accumulation less than 1/4 inch.</u>
Significant	Freezing rain with <u>accumulation of 1/4 inch to less than 1 inch.</u>
Extreme	Freezing rain with <u>accumulation of greater than or equal to 1 inch.</u>

http://www.crh.noaa.gov/sgf/?n=dec_sup_main

A number of Short Term Forecast resources are available to support decision makers.

Short Term Forecast (NOWCAST)

Short Term Forecasts are issued to provide detailed weather information during significant or rapidly changing weather conditions. Short Term Forecast provides a summary of the location, coverage, intensity and movement of precipitation including thunderstorms. Short Term Forecasts answer “what?”, “where?” and “when?”.

Short Term Forecast Example:

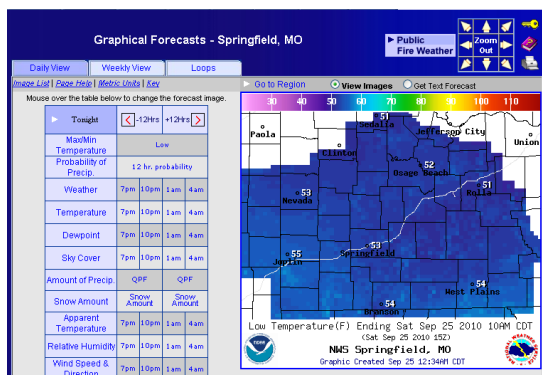
.NOW...

SHOWERS WILL CONTINUE TO SPREAD EAST ACROSS THE MISSOURI OZARKS THROUGH 7 AM AHEAD OF AN APPROACHING COLD FRONT. THE LEADING EDGE OF THE SHOWERS EXTENDING FROM NEAR ROLLA...TO HOUSTON...TO GAINESVILLE...WILL REACH THE EMINENCE AND ALTON AREAS BY 6 AM. MODERATE TO LOCALLY HEAVY RAINFALL WILL ACCOMPANY THE SHOWERS WITH RAINFALL AMOUNTS OF ONE QUARTER TO THREE QUARTERS OF AN INCH COMMON. LOCALLY HEAVIER AMOUNTS IN EXCESS OF AN INCH WILL BE POSSIBLE. THOSE TRAVELING TONIGHT SHOULD BE AWARE OF PONDING OF WATER ON AREA ROADS. WIND GUSTS TO 35 MPH WILL ACCOMPANY THE HEAVIER SHOWERS. THE SHOWERS WILL END FROM THE WEST ACROSS SOUTHWEST AND CENTRAL MISSOURI.

NOWCAST Text - <http://www.crh.noaa.gov/product.php?site=sgf&product=NOW&issuedby=sgf>

Short Term Forecast Briefing Page - <http://www.crh.noaa.gov/sgf/?n=nowcastbrief>

Short Term Forecast Graphics



A graphical depiction of the forecast derived from the National Digital Forecast Database can be viewed on a local and regional level. Forecast elements can be viewed in 3, 6 and 12 hour increments

<http://www.weather.gov/forecasts/wfo/sectors/sgf.php>

Area Forecast Discussion

If you want to know what a forecaster is thinking and the reasoning for a forecast to go to our Area Forecast Discussion.

[http://forecast.weather.gov/product.php?](http://forecast.weather.gov/product.php?site=SGF&issuedby=SGF&product=AFD&format=CI&version=1&glossary=1)

[site=SGF&issuedby=SGF&product=AFD&format=CI&version=1&glossary=1](http://forecast.weather.gov/product.php?site=SGF&issuedby=SGF&product=AFD&format=CI&version=1&glossary=1)

Wind Chill Chart

Wind (mph)	Temperature (°F)																	
		35	30	25	20	15	10	5	0	-5	-10	-15	-20	-25	-30	-35	-40	-45
	5	31	25	19	13	7	1	-5	-11	-16	-22	-28	-34	-40	-46	-52	-57	-63
	10	27	21	15	9	3	-4	-10	-16	-22	-28	-35	-41	-47	-53	-59	-66	-72
	15	25	19	13	6	0	-7	-13	-19	-26	-32	-39	-45	-51	-58	-64	-71	-77
	20	24	17	11	4	-2	-9	-15	-22	-29	-35	-42	-48	-55	-61	-68	-74	-81
	25	23	16	9	3	-4	-11	-17	-24	-31	-37	-44	-51	-58	-64	-71	-78	-84
	30	22	15	8	1	-5	-12	-19	-26	-33	-39	-46	-53	-60	-67	-73	-80	-87
	35	21	14	7	0	-7	-14	-21	-27	-34	-41	-48	-55	-62	-69	-76	-82	-89
	40	20	13	6	-1	-8	-15	-22	-29	-36	-43	-50	-57	-64	-71	-78	-84	-91
	45	19	12	5	-2	-9	-16	-23	-30	-37	-44	-51	-58	-65	-72	-79	-86	-93
	50	19	12	4	-3	-10	-17	-24	-31	-38	-45	-52	-60	-67	-74	-81	-88	-95
	55	18	11	4	-3	-11	-18	-25	-32	-39	-46	-54	-61	-68	-75	-82	-89	-97

Frostbite Times:

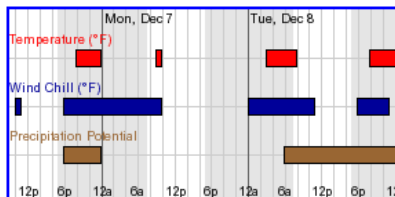
30 Minutes

10 Minutes

5 Minutes

<http://www.nws.noaa.gov/om/windchill/>

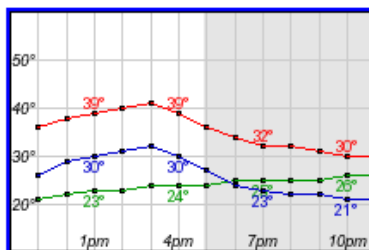
<http://www.nws.noaa.gov/os/windchill/windchillglossary.shtml>



Wind Chill Forecast in the Weather Planner

This interactive forecast display can be utilized to define and observe forecast wind chill values.

<http://forecast.weather.gov/wxplanner.php?site=sgf>



Interactive Wind Chill Forecast Graphs

Hourly Weather Graphs and tables can be utilized to view temperature and wind chill trends. Simply select the forecast format you desire and select the location of choice.

<http://forecast.weather.gov/gridpoint.php?site=sgf>

iNWS—Interactive NWS

National Weather Service Mobile Decision Support Services (MDSS)

iNWS MOBILE ALERTING

Receive customized text message and e-mail alerts for National Weather Service products that you care about.



<http://inws.wrh.noaa.gov/>

InteractiveNWS (iNWS) is the home of new mobile and desktop innovations of the National Weather Service. This application suite allows NWS partners to receive National Weather Service products in new and innovative ways, such as text messaging and mobile-enabled webpages. iNWS strives to fulfill our mission of protecting life and property by using new technology to reach out to our customers.

NWSChat

National Weather Service Chat



NWSChat is an Instant Messaging program utilized by NWS operational personnel to share critical warning decision expertise and other types of significant weather information essential to the NWS's mission of saving lives and property. This information is exchanged in real-time with the media and emergency response community, who in turn play a key role in communicating the NWS's hazardous weather messages to the public.

<https://nwschat.weather.gov/>



RSS Feeds

Really Simple Syndication (RSS) is a family of web formats used to publish frequently updated digital content. RSS feeds are most commonly used to update news articles and other content that changes quickly. Users of RSS content 'subscribe' to a feed by entering the link of the RSS feed into their RSS feed reader; the RSS feed reader then checks the subscribed feeds to see if any have new content since the last time it checked, and if so, retrieves the new content and present it to the user.

Local NWS Springfield RSS page - http://www.crh.noaa.gov/sgf/?n=sgf_rss

Winter Weather Outlook 2010-11

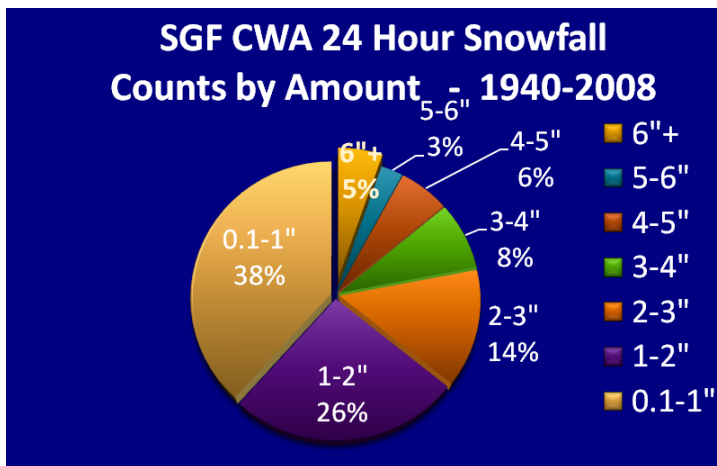


The Climate Prediction Center is indicating warmer and wetter conditions than normal from December through February. For more details go to the link below.

http://www.noaanews.noaa.gov/stories2010/20101021_winteroutlook.html

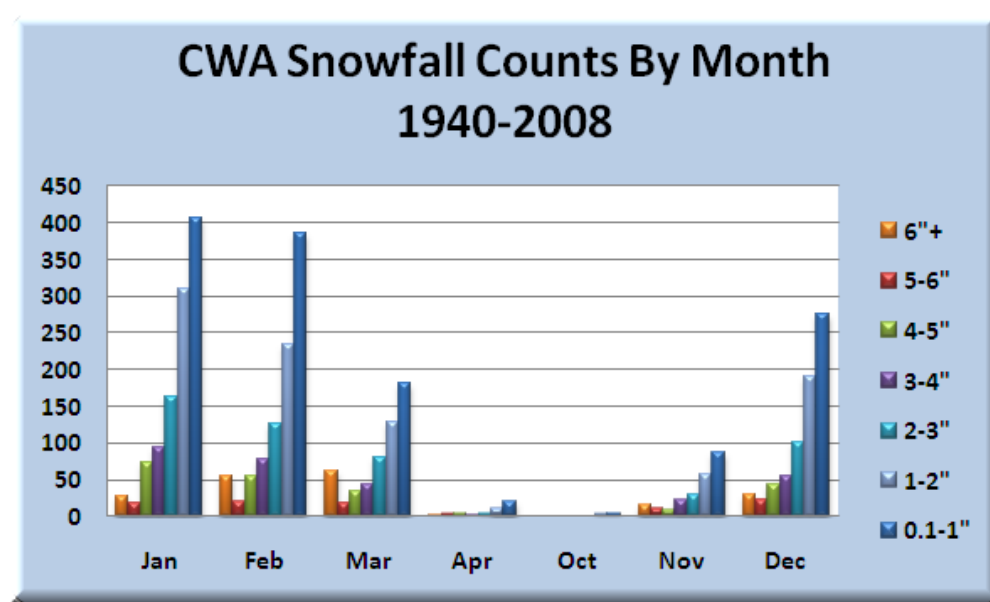


How often do we get big snows?



NWS Springfield conducted a study to assess the magnitude and frequency of snowfall events across the forecast area. The sample for this study included several Cooperative Observation sites across southwest Missouri.

Comparing snowfall events since 1940 shows that the majority of snowfall events are below 6 inches. Only ~ 5 percent of winter storm events produce accumulations of 6 inches or more.



The chart above depicts the number of snowfall events for each month.

The majority of snowfall across the Missouri Ozarks and extreme southeast Kansas from December through February. The heavier snows tend to fall in January and February but a relatively significant number of events in March are above 6 inches.

Winter Weather Decision Support



National Weather Service
Springfield, MO Weather Forecast Office
Springfield-Branson Regional Airport
5805 West Highway EE
Springfield, MO 65802-8430

The mission of the National Weather Service :

The National Weather Service (NWS) provides weather, hydrologic, and climate forecasts and warnings for the United States, its territories, adjacent waters and ocean areas, for the protection of life and property and the enhancement of the national economy.

NWS data and products form a national information database and infrastructure which can be used by other governmental agencies, the private sector, the public, and the global community.

<http://www.weather.gov/springfield>

Events

In preparation for the upcoming winter season, an Emergency Management Winter Operations webinar was held on December 29th. In addition, a meeting was held with the Missouri and Kansas Departments of Transportation along with Missouri and Kansas Highway Patrols on December 30th. These meetings were very profitable in continuing our ongoing partnership and enhancing decision support services with the common mission of protecting the lives of those in our communities.

Snowfall Data Resources

National Operational Hydrologic Remote Sensing Center

<http://www.nohrsc.noaa.gov/>

Climatic Data Center

<http://www.ncdc.noaa.gov/snow-and-ice/>

Midwest Climate Center

<http://mrcc.isws.illinois.edu/>

